

Consolidated Water Use Efficiency 2002 PSP

Proposal Part One

A. Project Information

1. Applying for: (a) Prop 13 Urban Water Conservation Capital Outlay Grant
2. Principal applicant: Long Beach Water Department
3. Project Title: **Irrigation System Replacement Project**
4. Person authorized to sign and submit proposal:
Kevin Wattier, General Manager
1800 E. Wardlow Rd. Long Beach, CA 90807
Tel. 562/570-2301
Fax. 562/595-0635
E-mail kevin_wattier@lbwater.org
5. Contact Name, title:
Juan E. Ovalle, Administrative Analyst
1800 E. Wardlow Rd. Long Beach, CA 90807
Tel. 562/570-2308
Fax. 562/595-0635
E-mail juan_ovalle@lbwater.org
6. Funds requested: **\$577,375** for Materials/Installation, and Contingency
7. Applicant funds pledged: **\$67,500** for Planning/Design/Engineering, Construction Administration, Construction Inspection, Post Evaluation & Training
8. Total project costs: **\$644,875**

9. Estimated total quantifiable project benefits: \$91,529 Net Savings per Year
Percent of benefit to be accrued by applicant: 100% of Net Savings
Percent of benefit to be accrued by CALFED or others: 100% Nominal Savings for Water
10. Estimated annual amount of water to be saved (acre-feet): 7.8 AF
Estimated total amount of water to be saved (acre-feet): 192 AF
Over 25 years
11. Duration of project: October 2002 through October 2004
12. State Assembly District where the project is to be conducted: Assembly Districts 54 & 55
13. State Senate District where the project is to be conducted: Senatorial Districts 25 & 27
14. Congressional district(s) where the project is to be conducted: Congressional District 37
15. County where the project is to be conducted: Los Angeles
16. Date most recent Urban Water Management Plan submitted to the Department of Water Resources: 2000
17. Type of applicant: (a) City
18. Project Focus: (b) Urban
19. Project type: (d) reduce potable water usage for irrigation by 50%, at the California Recreation Center Park and various City of Long Beach traffic mediums.
20. Do the actions in this proposal involve physical changes in land use, or potential future changes in land use? NO

By signing below, the official declares the following:

The truthfulness of all representations in the proposal;

The individual signing the form is authorized to submit the proposal on behalf of the applicant; and

The individual signing the form read and understood the conflict of interest and confidentiality section and waives any and all rights to privacy and confidentiality of the proposal on behalf of the applicant.

_____	<u>Kevin Wattier, General Manager</u>	<u>2/27/2002</u>
Signature	Name and title	Date

PROPOSAL PART TWO

PROJECT SUMMARY

The proposed project consists of replacing deteriorated and aging irrigation systems at the 2.09 acre California Community Recreation Center (CalRec) and the 1 acre Median Project Area (Median Area). These green areas provide a wide variety of recreational facilities to the community including playgrounds, baseball fields, picnic facilities and turf for jogging or walking. CalRec and the Median Area are owned and operated by the City of Long Beach, the fifth most populated city in the State of California (please refer to Figures 1 & 2). Long Beach is located within the CALFED Project Area.

The source of water for CalRec and the Median Area is potable water from the Long Beach Water Department (LBWD). Fifty percent of LBWD's potable water is imported from the San Francisco Bay / Sacramento Delta and the Colorado River.

Currently, CalRec and Median Project require approximately 15.7 acre-feet of potable water per year to maintain the park turf and landscaping at an acceptable level. Roughly, twice the as much water is used than is really necessary. The excess water use is caused by a combination of poor irrigation control systems, either manual or traditional timers, and deteriorated galvanized irrigation lines and sprinklers.

LBWD in cooperation with the City of Long Beach Department of Parks, Recreation and Marine and the Department of Public Works, has studied the potential gains from replacing aging and inefficient irrigation systems in order to save valuable potable water while maintaining and enhancing the City's green space for the enjoyment of the community.

The population density in Long Beach is the second highest in California, with 9,149 persons per square mile, and has a park deficit nearing 3 acres of park land per 1000 residents on the average and up to 6 acres of park land per 1000 residents in the CalRec project area. It is of no surprise that maintaining the green spaces of Long Beach at their best is of major concern. It is estimated that at any one time over watering renders about 10% of this green space unusable.

The technology proposed for this project is state of the art controllers with water saving features such as operational, diagnostics, alarm and water volume information reports; monthly water-volume limit capabilities; full year of programming; cycle and soak features to minimize run-off; lateral, mainline and electrical fault detection and protection; and flow management. The system will also be equipped with irrigation telemetry technology capabilities to allow for remote communication to irrigation controllers from either a central computer installed at the Department of Parks and Public Works field offices or from hand held mobile units.

LBWD currently serves a population of approximately one half million people. The Project water savings will reduce the amount of imported water the LBWD currently purchases from the Metropolitan Water District of Southern California (MWD) and will reduce future demands on the State Water Project and Colorado River water supplies.

A. SCOPE OF WORK: Relevance and Importance

1. Nature, Scope and Objectives of the project

Replace the existing inefficient irrigation system throughout the park grounds at CalRec located at 1550 Martin Luther King, Jr. Ave. and medians in the Median Area bounded by Spring St. to the south, Wardlow Rd. to the north Belflower Blvd to the west and Woodruff to the east to reduce potable water waste by a minimum of 50% (please see Figures 1 & 2).

A good portion of the park system as well as some of the turf medians of the City of Long Beach have been converted to reclaimed water. There are, however, many of these parks and medians that are not in the service area of the City's reclaimed water system and are still irrigated with potable water. Of these parks and medians, only a few have been upgraded to newer irrigation systems.

Being about 50 years old the existing irrigation system at CalRec is one of the oldest in the City and is also one of the most inefficient. The irrigation system for CalRec is comprised of outdated hydraulic controllers and valves that do not provide for flexibility in the system. There are four major drawbacks to the existing system. First, the hydraulic system does not allow for any water budgeting and programming based on landscape water requirements. All

valves operate on the same program. As such, much of the landscape may be over watered in order to apply the correct amount of water to a specific area. Second, the existing hydraulic system has exceeded its useful life and is continually malfunctioning. When the hydraulic valve tubing is compromised (by degradation or damage by rodents, for example), all of the irrigation heads connected to the bad valve remain in the “on” mode. The current irrigation systems are manually operated, a City employee drives around turning on and off irrigation valves. Fourth, the galvanized iron irrigation system is around fifty years old and has reached its useful life. Therefore, it is frequently leaking due to breaks on the lines and sprinkler risers. These conditions certainly contribute to excessive use of potable water on a very frequent basis.



Of the City of Long Beach turf medians, about 18 miles consist of turf median that were designed and constructed in the 1950's or earlier. The great majority of these medians are 8 to 12-feet wide and are located within residential neighborhoods and are used by joggers and walkers seeking turf to exercise on. The irrigation systems for the Median Area were designed to operate with 15-foot radius high volume sprinkler heads. When the systems are operated, the result is severe over spray and runoff into the City streets ending up in the storm drain. The systems for the Median Area are outdated, and as such, are comprised of

components that were not designed for optimal water efficiency. Additionally, the systems are operated through the use of manual control valves, meaning a City Gardener drives from site to site turning on and off irrigation valves and irrigation is often accomplished mid-day when evaporation rates are at the highest level. Unfortunately, these systems were installed using galvanized pipe that as in the CalRec are extremely deteriorated and will not lend themselves to retrofitting with newer water conservation equipment and are subject to frequent breakage, resulting in uncontrolled runoff.

2. Critical Issues

Statement of critical local, regional, Bay-Delta, State or federal water issues. Include an explanation of the need for the project. Describe how this project would be consistent with local or regional water management plans or other resource management plans.

Today the Bay-Delta system is experiencing serious problems. Not only are the habitats declining, the system has suffered from impaired water quality as well as significant declined water supply reliability. The Bay-Delta system is an intricate web of waterways created at the junction of the San Francisco Bay and the Sacramento and San Joaquin rivers and the watershed that feeds them. More than 22 million Californians rely on the system for all or some of their drinking water. For southern California, fixing the Bay-Delta System means better drinking water quality and a more secure economy because the Bay-Delta system supplies an essential portion of the water consumed by 16 million southern Californians and their \$450 billion economy. The CALFED Bay-Delta Program was formulated to bring together cooperative efforts among state and federal agencies and California's environmental, urban and agricultural communities to address these problems. The CALFED Bay-Delta Program is currently in its third phase to develop and implement a long-term comprehensive plan that will restore ecological health and improve water management for beneficial uses of the Bay-Delta System. Success of the CALFED Bay-Delta Program depends upon the involvement and support of the public through various programs. Close cooperation has to be extended to not only among state and federal agencies, but also urban and agricultural water users and others who play an important role in the collaborative process of solving problems.

Southern California's population and economy are expected to increase about 80% in the next 20 years while Colorado River supplies are expected to decrease and the State Water Project supplies to remain at current levels. Elimination of wasteful water practices is one essential step that must be taken to correct this impending imbalance between supply and demand. The proposed projects outlined in this proposal, reduce by 50% the drinking water needs of these landscape areas and at the same time increase the quality of life in the City.

Recognizing that outdoor irrigation potentially represents one of the greatest sources of conservation, LBWD offers a variety of services and programs to large-landscape customers designed to meet the requirements of the California Urban Water Conservation Councils (CUWCC), Best Management Practices (BMP) #5. One such service is assisting our largest landscape customers by providing expertise and technical data that may evolve into incentives to upgrade irrigation systems in order to increase efficient water use, such is the case with our largest landscape customer, the City of Long Beach and the proposed projects.

The irrigation system upgrade project intends to build on LBWD's existing conservation program and promote water use efficiency to maximize water conservation throughout the City. It will enhance local flexibility and reliability of water supply through incentive-based programs. The project is consistent with the City's existing water management plan and in conformance with guidelines prepared by the CUWCC in the "Memorandum of Understanding Regarding Urban Water Conservation in California".

B. SCOPE OF WORK: Technical/Scientific Merit, Feasibility, Monitoring and Assessment

1. Methods, Procedures, and Facilities

The new irrigation system will provide a complete water management system. The components of the new system includes:

- State of the art controller with water saving features such as operational, diagnostic, alarm and water volume information reports; monthly water-volume limit capabilities; full year of programming; fully adjustable to use daily evapotranspiration data; cycle

and soak features to minimize run-off; lateral, mainline and electrical fault detection and protection; flow management.

- Flow meters and master valves to display and report real time flow. The flow meter learns the normal flows and will shut down when flow exceeds normal.
- ET Gage to measure evapotranspiration directly and transmit the information to the controller, and soil moisture sensors where applicable.
- Rain monitors to adjust or shut down irrigation when rainfall occurs.
- Wind gage to shut down irrigation during high wind conditions.
- Irrigation heads with matched precipitation rates and interchangeable nozzles to improve efficiency of system.

The services of a certified irrigation professional will be secured to prepare plans to meet the intended objectives within budget and on schedule.

2. Task List and Schedule

Please refer to attached Gantt Chart (Exhibit A) for the proposed project schedule.

3. Monitoring and Assessment

The City of Long Beach has historical water use data for California Recreation System and the Median Area. Following the installation of the new irrigation system, this information will be available to assess the water savings. LBWD staff will monitor the water use by tabulating meter readings and assess the effectiveness of the new irrigation systems by reviewing and comparing data from the previous years water usage for the same locations. A certified irrigation professional will be utilized to monitor the system for the first 6 months to ensure that the system is operating to full potential and to train city maintenance staff on the water efficiency capabilities of the system.

4. Preliminary Plans and Specifications

Not Required

B. Qualifications of the Applicants and Cooperators.

1. Resumes of the project Managers

- Kevin Wattier, General Manager, Long Beach Water Department (Please see Exhibit B-1).
- Anna Mendiola, Park Development Officer, City Long Beach Department of Parks, Recreation and Marine (Please see Exhibit B-2).
- Anthony G. Arevalo, Capital Projects Coordinator, City of Long Beach Department of Public Works (Please see Exhibit B-3).

Benefits and Costs

1. Budget Breakdown and Justification

Item	Cost	Justification
Planning/Design/Engineering	\$36,250	Plans and Specifications for bidding purposed
Materials/Installation	\$518,750	Materials, equipment and labor required to install new system
Construction Administration	\$17,500	Staff time for consultant contract administration, bidding, construction contract administration, etc.
Construction Inspection	\$9,750	Staff time for inspection to insure compliance with bid documents
Post Evaluation and Training	\$4,000	Provide assessment of savings and training to optimize water efficiency
Sub Total	\$586,250	
Contingency	\$58,625	10% Contingency to cover unforeseen costs, especially related to underground conditions not evident during design.
Grand Total	\$644,875	

2. Cost Sharing

Not Required

3. Benefit Summary and Breakdown

a. Quantifiable outcomes:

Implementation of this project will enable the City of Long Beach to realize savings of at least 7.8 acre-feet per year of imported water supply purchased from MWD. The rehabilitated irrigation system will not only reduce water demand from CalRec and Median Area, reduce the City's over all water consumption by a minimum of one tenth of one percent through greater compliance with our water conservation messages. Our water customers take their water-use cues from the City. When the City appears to ignore its own water conservation messages, by using significantly more water than is necessary if using new equipment, our customers likewise tend to ignore our water conserving admonitions.

The total net amount of water savings is expected to be approximately \$35,000 but will increase based on annual MWD water rate increases.

As discussed in this document, it is estimated that approximately 10% of the turf areas of CalRec and the Median Areas are rendered unusable due to over watering. This amount of land in a City where open public space is scarce is very pricey it is estimated that the social cost to replace an acre-foot of parkland is in the area of approximately \$800,000 or more. Therefore, to replace a tenth of the project area with usable parkland is estimated at \$26,000 per year in today's dollars. It is also estimated that the new irrigation systems will reduce the annual cost associated with having a City employee turning on and off sprinkler valves and performing irrigation pipeline repairs by approximately \$31,000.

Given that the irrigation system will have a 25 year useful life and the total quantifiable benefits in annual net savings is of approximately \$92,000, the project is expected to reach the discounted break even point in 8 years (pleas refer to Tables 1 - 3)

b. Non-quantified benefits:

The improved irrigation system will enhance the landscaping, thereby improving the aesthetics of CalRec and the Median Area as well as the surrounding neighborhood and nearby schools. Across the street from CalRec is Long Beach Polytechnic High School, one of the most notable high schools in the nation. The improved irrigation system will provide for even coverage of water across the ball field at CalRec, thereby improving play and the safety of players. The ability to control water to water the project areas will reduce storm drain run-off and assist in the City's efforts in the area of storm water run-off reduction.

4. Assessment of Costs and Benefits

An economic analysis has been prepared to assess the costs and benefits of the CalRec and Median Area irrigation project. Tables 1 to 3 present the details of the economic analysis as described below:

- Table 1 contains details on water savings
- Table 2 presents details on the Social Value of Loss Park Space from Over-watering / Under-watering; and Labor Costs derived from a City employee turning on and off the sprinkler valve system as well as maintenance of the deteriorated irrigation piping.
- Table 3 displays the Nominal Savings (Costs); and Present Value derived from the details contained in Tables 1 & 2.

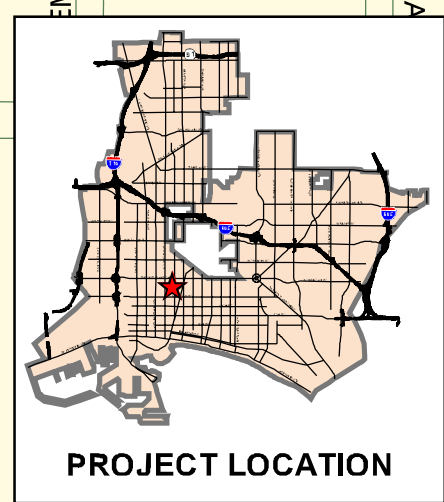
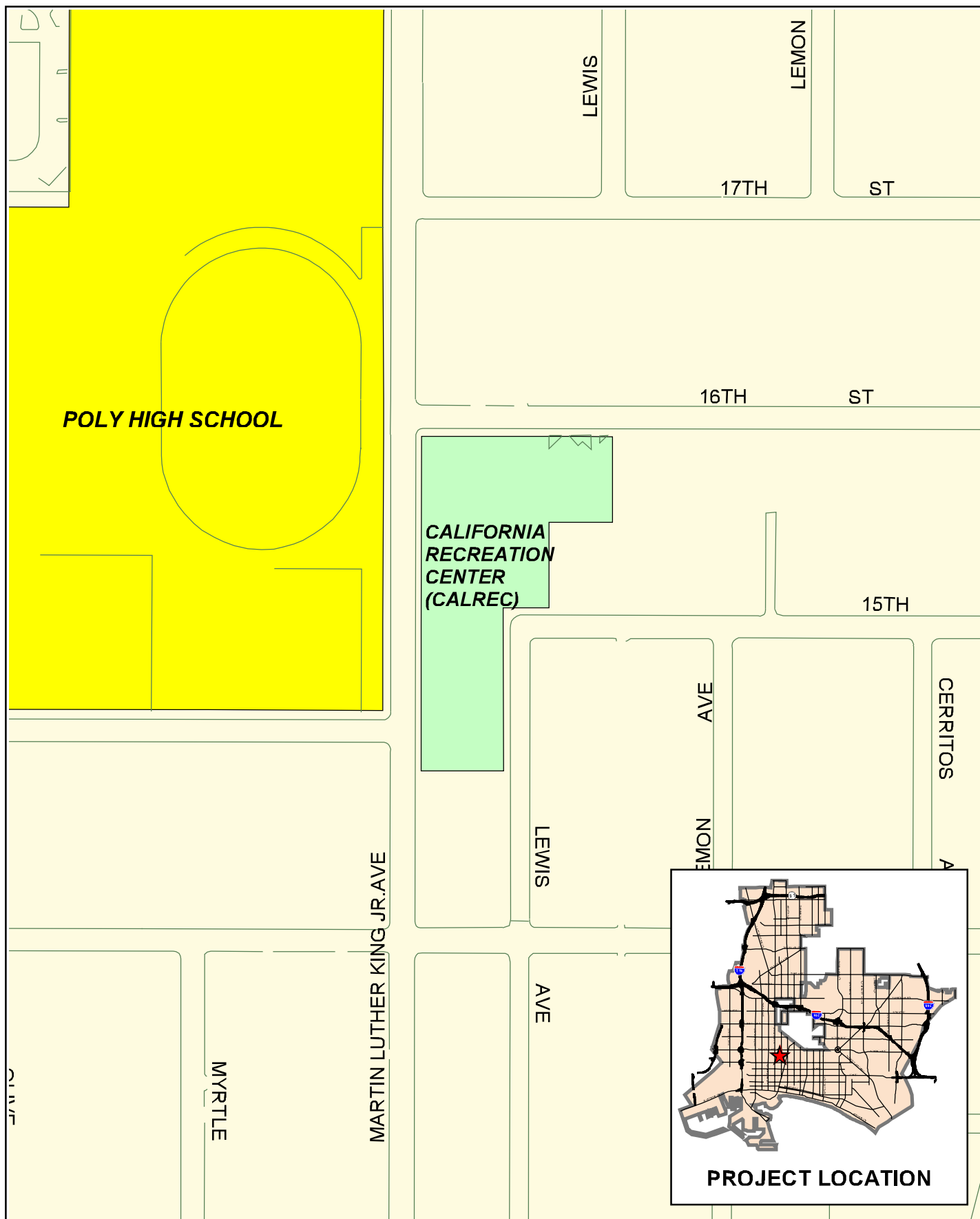
E. Outreach, Community Involvement and Acceptance

The community has been our greatest motivator in developing the irrigation systems upgrade project and in involving three City of Long Beach departments in order to reach conclusions on the most cost effective areas to begin this project. We have received numerous telephone calls from residents complaining about water flowing freely down street gutters or of parkland that is so saturated with that it is unusable. How then, many community members have voiced, can the community take LBWD's and California's water conservation issues seriously if we can not control our own use. Therefore, LBWD being the water purveyor to the City has

taken the lead in demonstrating to the City's Department's of Public Works, and Parks Recreation and Marine that we are serious about water conservation and that a well planned water conservation projects can be of tremendous benefit to all parties involved.

It is expected that from meetings and conversations with members of the City's environmental community that the proposed projects and objectives will be well accepted and endorsed as a solid first step in curbing the practice of wasteful irrigation. Our relationship with the Metropolitan Water District of Southern California's (MWD) Conservation Section, and planning meetings related to the Consolidated Water Use Efficiency Solicitation Package held at MWD offices has made them well aware of our proposed project which they are also supporting.

Once the project has been completed, LBWD plans to continue with working with the community through outreach and educational programs that will showcase these projects as water efficient parkland that can be used as positive examples of cooperation between local and state agencies.



**Figure 1: CalRec - California Recreation Center
Irrigation System Upgrades**

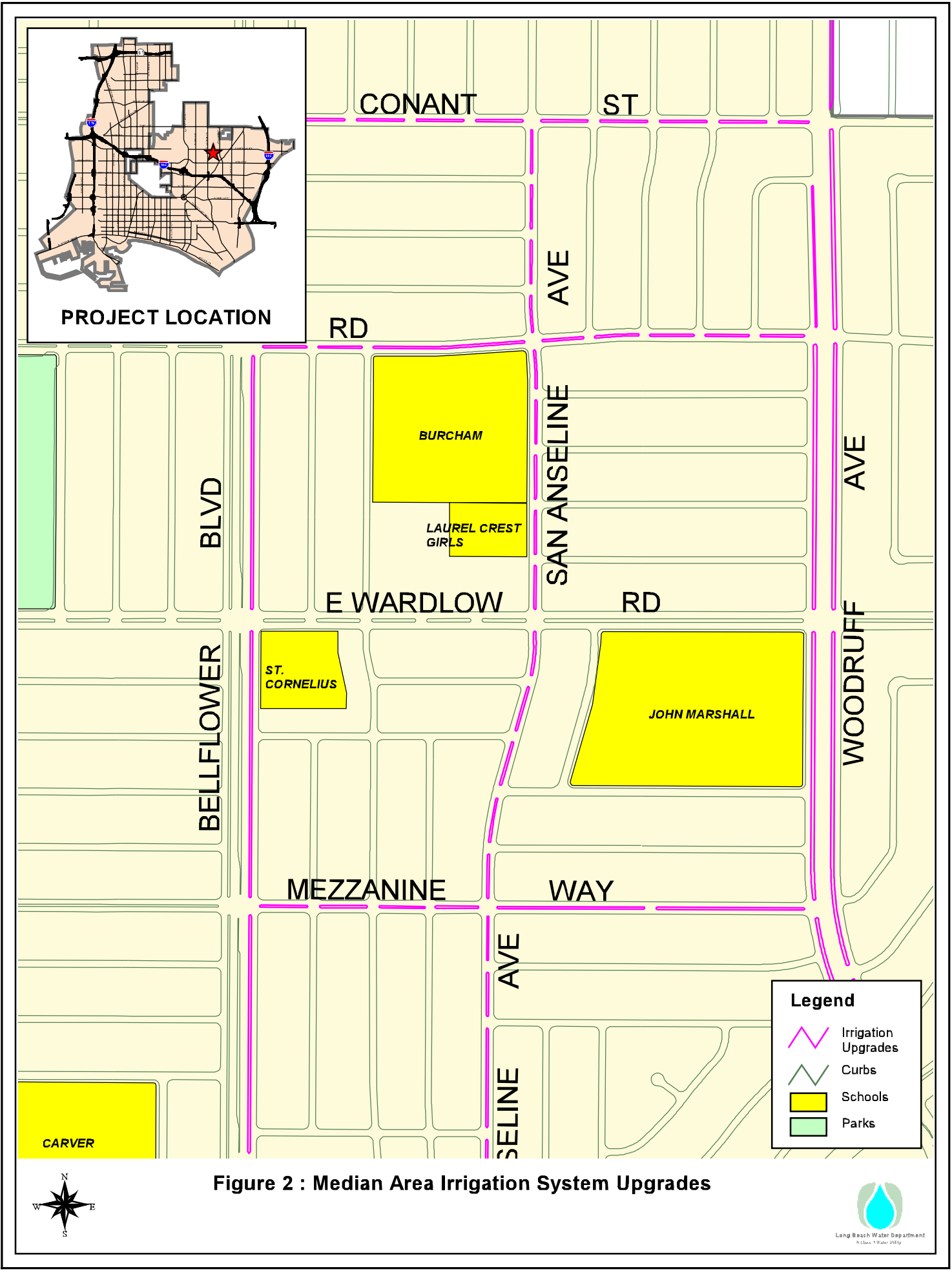


Table 1

WATER SAVINGS												
Year	Year #	% Lost due to Leakage	% Lost from Overspray	% Lost from Overwatering	TOTAL % LOST	AF Used	TOTAL AF LOST	Saved on Site (af) (= "Total Lost")	Saved by Community (af)	Total Saved (af)	\$ Savings per AF of conservation	Total Water Savings
2004	1	5%	20%	25%	50%	15.70	7.85	7.85	70.00	77.85	\$ 446.10	\$ 34,729
2005	2	6%	20%	25%	51%	15.70	8.01	8.01	70.00	78.01	\$ 459.49	\$ 35,843
2006	3	7%	20%	25%	52%	15.70	8.16	8.16	70.00	78.16	\$ 473.27	\$ 36,993
2007	4	8%	20%	25%	53%	15.70	8.32	8.32	70.00	78.32	\$ 487.47	\$ 38,179
2008	5	9%	20%	25%	54%	15.70	8.48	8.48	70.00	78.48	\$ 502.10	\$ 39,403
2009	6	10%	20%	25%	55%	15.70	8.64	8.64	70.00	78.64	\$ 517.16	\$ 40,667
2010	7	11%	20%	25%	56%	15.70	8.79	8.79	70.00	78.79	\$ 532.67	\$ 41,970
2011	8	12%	20%	25%	57%	15.70	8.95	8.95	70.00	78.95	\$ 548.65	\$ 43,316
2012	9	13%	20%	25%	58%	15.70	9.11	9.11	70.00	79.11	\$ 565.11	\$ 44,704
2013	10	14%	20%	25%	59%	15.70	9.26	9.26	70.00	79.26	\$ 582.07	\$ 46,136
2014	11	15%	20%	25%	60%	15.70	9.42	9.42	70.00	79.42	\$ 599.53	\$ 47,614
2015	12	16%	20%	25%	61%	15.70	9.58	9.58	70.00	79.58	\$ 617.51	\$ 49,140
2016	13	17%	20%	25%	62%	15.70	9.73	9.73	70.00	79.73	\$ 636.04	\$ 50,714
2017	14	18%	20%	25%	63%	15.70	9.89	9.89	70.00	79.89	\$ 655.12	\$ 52,338
2018	15	19%	20%	25%	64%	15.70	10.05	10.05	70.00	80.05	\$ 674.77	\$ 54,014
2019	16	20%	20%	25%	65%	15.70	10.21	10.21	70.00	80.21	\$ 695.02	\$ 55,744
2020	17	21%	20%	25%	66%	15.70	10.36	10.36	70.00	80.36	\$ 715.87	\$ 57,529
2021	18	22%	20%	25%	67%	15.70	10.52	10.52	70.00	80.52	\$ 737.34	\$ 59,370
2022	19	23%	20%	25%	68%	15.70	10.68	10.68	70.00	80.68	\$ 759.46	\$ 61,270
2023	20	24%	20%	25%	69%	15.70	10.83	10.83	70.00	80.83	\$ 782.25	\$ 63,231
2024	21	25%	20%	25%	70%	15.70	10.99	10.99	70.00	80.99	\$ 805.72	\$ 65,255
2025	22	26%	20%	25%	71%	15.70	11.15	11.15	70.00	81.15	\$ 829.89	\$ 67,343
2026	23	27%	20%	25%	72%	15.70	11.30	11.30	70.00	81.30	\$ 854.78	\$ 69,497
2027	24	28%	20%	25%	73%	15.70	11.46	11.46	70.00	81.46	\$ 880.43	\$ 71,720
2028	25	29%	20%	25%	74%	15.70	11.62	11.62	70.00	81.62	\$ 906.84	\$ 74,014

Table 1

Table 2

Year	Year #	Social Value of Loss Park Space from Overwatering / Underwatering					Labor Costs		
		% of Parkland Effected	Total Parkland (acres)	Total Acres Effected	Social Cost per Acre	Total Cost of Lost Acreage	Hourly Operating Cost	Hours Saved per Year	Total Savings
2004	1	1.0%	3.2	0.032	\$800,000	\$ 25,600	\$50	624	\$31,200
2005	2	1.0%	3.2	0.032	\$800,000	\$ 25,600	\$50	624	\$31,200
2006	3	1.0%	3.2	0.032	\$800,000	\$ 25,600	\$50	624	\$31,200
2007	4	1.0%	3.2	0.032	\$800,000	\$ 25,600	\$50	624	\$31,200
2008	5	1.0%	3.2	0.032	\$800,000	\$ 25,600	\$50	624	\$31,200
2009	6	1.0%	3.2	0.032	\$800,000	\$ 25,600	\$50	624	\$31,200
2010	7	1.0%	3.2	0.032	\$800,000	\$ 25,600	\$50	624	\$31,200
2011	8	1.0%	3.2	0.032	\$800,000	\$ 25,600	\$50	624	\$31,200
2012	9	1.0%	3.2	0.032	\$800,000	\$ 25,600	\$50	624	\$31,200
2013	10	1.0%	3.2	0.032	\$800,000	\$ 25,600	\$50	624	\$31,200
2014	11	1.0%	3.2	0.032	\$800,000	\$ 25,600	\$50	624	\$31,200
2015	12	1.0%	3.2	0.032	\$800,000	\$ 25,600	\$50	624	\$31,200
2016	13	1.0%	3.2	0.032	\$800,000	\$ 25,600	\$50	624	\$31,200
2017	14	1.0%	3.2	0.032	\$800,000	\$ 25,600	\$50	624	\$31,200
2018	15	1.0%	3.2	0.032	\$800,000	\$ 25,600	\$50	624	\$31,200
2019	16	1.0%	3.2	0.032	\$800,000	\$ 25,600	\$50	624	\$31,200
2020	17	1.0%	3.2	0.032	\$800,000	\$ 25,600	\$50	624	\$31,200
2021	18	1.0%	3.2	0.032	\$800,000	\$ 25,600	\$50	624	\$31,200
2022	19	1.0%	3.2	0.032	\$800,000	\$ 25,600	\$50	624	\$31,200
2023	20	1.0%	3.2	0.032	\$800,000	\$ 25,600	\$50	624	\$31,200
2024	21	1.0%	3.2	0.032	\$800,000	\$ 25,600	\$50	624	\$31,200
2025	22	1.0%	3.2	0.032	\$800,000	\$ 25,600	\$50	624	\$31,200
2026	23	1.0%	3.2	0.032	\$800,000	\$ 25,600	\$50	624	\$31,200
2027	24	1.0%	3.2	0.032	\$800,000	\$ 25,600	\$50	624	\$31,200
2028	25	1.0%	3.2	0.032	\$800,000	\$ 25,600	\$50	624	\$31,200

Table 2

Table 3

Year	Year #	Nominal Savings (Costs)					Present Value	
		Capital Cost of Project	Less Water Savings	Less Asset Savings	Less O&M Savings	Annual Net Savings (Cost)	Total	Cummulative
2003	0	\$ (628,750)				\$ (628,750)	\$ (628,750)	\$ (628,750)
2004	1		\$ 34,729	\$ 25,600	\$31,200	\$ 91,529	\$ 86,348	\$ (542,402)
2005	2		\$ 35,843	\$ 25,600	\$31,200	\$ 92,643	\$ 82,452	\$ (459,949)
2006	3		\$ 36,993	\$ 25,600	\$31,200	\$ 93,793	\$ 78,750	\$ (381,199)
2007	4		\$ 38,179	\$ 25,600	\$31,200	\$ 94,979	\$ 75,232	\$ (305,967)
2008	5		\$ 39,403	\$ 25,600	\$31,200	\$ 96,203	\$ 71,889	\$ (234,078)
2009	6		\$ 40,667	\$ 25,600	\$31,200	\$ 97,467	\$ 68,710	\$ (165,368)
2010	7		\$ 41,970	\$ 25,600	\$31,200	\$ 98,770	\$ 65,688	\$ (99,680)
2011	8		\$ 43,316	\$ 25,600	\$31,200	\$ 100,116	\$ 62,814	\$ (36,866)
2012	9		\$ 44,704	\$ 25,600	\$31,200	\$ 101,504	\$ 60,080	\$ 23,214
2013	10		\$ 46,136	\$ 25,600	\$31,200	\$ 102,936	\$ 57,479	\$ 80,693
2014	11		\$ 47,614	\$ 25,600	\$31,200	\$ 104,414	\$ 55,004	\$ 135,697
2015	12		\$ 49,140	\$ 25,600	\$31,200	\$ 105,940	\$ 52,649	\$ 188,346
2016	13		\$ 50,714	\$ 25,600	\$31,200	\$ 107,514	\$ 50,407	\$ 238,753
2017	14		\$ 52,338	\$ 25,600	\$31,200	\$ 109,138	\$ 48,272	\$ 287,025
2018	15		\$ 54,014	\$ 25,600	\$31,200	\$ 110,814	\$ 46,239	\$ 333,264
2019	16		\$ 55,744	\$ 25,600	\$31,200	\$ 112,544	\$ 44,302	\$ 377,566
2020	17		\$ 57,529	\$ 25,600	\$31,200	\$ 114,329	\$ 42,458	\$ 420,024
2021	18		\$ 59,370	\$ 25,600	\$31,200	\$ 116,170	\$ 40,699	\$ 460,723
2022	19		\$ 61,270	\$ 25,600	\$31,200	\$ 118,070	\$ 39,024	\$ 499,747
2023	20		\$ 63,231	\$ 25,600	\$31,200	\$ 120,031	\$ 37,426	\$ 537,173
2024	21		\$ 65,255	\$ 25,600	\$31,200	\$ 122,055	\$ 35,903	\$ 573,076
2025	22		\$ 67,343	\$ 25,600	\$31,200	\$ 124,143	\$ 34,450	\$ 607,527
2026	23		\$ 69,497	\$ 25,600	\$31,200	\$ 126,297	\$ 33,064	\$ 640,591
2027	24		\$ 71,720	\$ 25,600	\$31,200	\$ 128,520	\$ 31,742	\$ 672,333
2028	25		\$ 74,014	\$ 25,600	\$31,200	\$ 130,814	\$ 30,480	\$ 702,812

Table 3

Exhibit A

ID		Task Name	Duration	Cost	3rd Quarter					4th Quarter			1st Quarte
					2/02	3/02	4/02	5/02	6/02	7/02	8/02	9/02	10/03
1		Grant Process	154 days	\$0.00									
2		Project Management	410 days	\$17,500.00									
3		Irrigation Design	111 days	\$21,750.00									
4		Preliminary Design	25 days	\$8,000.00									
5		Final Construction Plans & Specs	66 days	\$13,750.00									
6		Contract Bidding	66 days	\$14,500.00									
7		Construction	90 days	\$518,750.00									
8		Construction Inspection	90 days	\$9,750.00									
9		Post Const. Monitoring & Evaluation	135 days	\$4,000.00									

Project: Juan
Date: Thu 2/28/02

Task

Split

Progress

Milestone

Summary

Rolled Up Task

Rolled Up Split

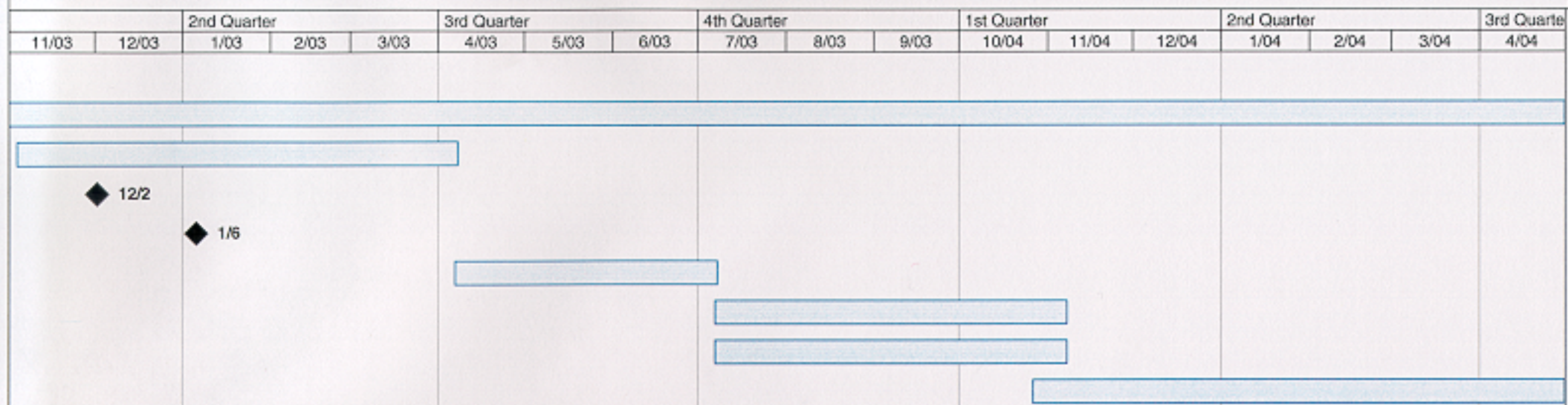
Rolled Up Milestone

Rolled Up Progress

External Tasks

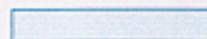
Project Summary

Exhibit A



Project: Juan
Date: Thu 2/28/02

Task



Split



Progress



Milestone



Summary



Rolled Up Task



Rolled Up Split



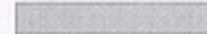
Rolled Up Milestone



Rolled Up Progress



External Tasks



Project Summary



Exhibit A

- 1 **Grant Process**
Grant Process duration will begin at proposal due date and end when contract has been executed and project begins
- 2 **Project Management**
Consultant contracts, payment processing, submittal review and general project management tasks
- 3 **Irrigation Design**
Includes preliminary and final construction plans and specifications
- 6 **Contract Bidding**
Construction bid documents, bidding, agreements, and Notice to Proceed
- 7 **Construction**
New irrigation system construction work
- 8 **Construction Inspection**
Compliance with plans and specs
- 9 **Post Const. Monitoring & Evaluation**
Training and assessment of project objectives

Kevin L. Wattier, P. E.

Experience Highlights

In-Depth knowledge of California Water Resources and Water system Issues with twenty years of water quality regulatory compliance, and water utility management experience

Academic Background

- Master of Science, Environmental Engineering, Clarkson University
- Bachelor of Science, Civil Engineering, South Dakota State University

Field of Special Competence

- Registered Professional Civil Engineer in California
- Grade V California Water Treatment Plant Operator Certification
- USC Water Utility Executive Management Short Course
- Cal-Tech Total Quality Management Short Course

Experience Overview

- Long Beach Water Department, General Manager, June 2001 to Present
Mr. Wattier is currently General Manager of the Long Beach Water Department. The LBWD has complete responsibility for water and sewer service for Long Beach, the fifth largest city in California and the 32nd largest city in the United States with a population of approximately 470,000 people. LBWD is also responsible for operations and maintenance of the City's storm water system. Mr. Wattier supervises a staff of approximately 220 employees, and is responsible for an annual budget of approximately \$84 million. The LBWD operates one of the country's largest groundwater treatment plants, with a capacity of 62.5 mgd, and also has the only municipally-owned water bottling plant in the country.
- McGuire Environmental Consultants, Inc.- Principal/Vice President, Oct 1999-May 2001
Mr. Wattier assisted several clients, including the Contra Costa Water District and Castaic Lake Water Agency, in assessing their regulatory compliance assessment for and devising practical compliance strategies. He also developed the water quality goals and benchmark treatment process for a new 25mgd surface water treatment plant being procured by a participated in water quality aspects of DBO in Rhode Island. Mr. Wattier has also had a major role in the Strategic Future of Water Utilities project conducted for AWWARF, and has assisted the California Avocado Commission in its effort to obtain affordable,

reliable water supplies. He served for four months as the Executive Director of the California Urban Water Agencies in Sacramento, an association of eleven of the largest urban water districts in California.

- Metropolitan Water District of So. Calif.-Asst. Chief of Operations-1998-1999
Responsible for overall managed Metropolitan Water District's water treatment and distribution facilities throughout Southern California. Areas of responsibility include Metropolitan's five regional surface water treatment plants with combined capacity of 2.6 billion gallons per day, all of the treated water distribution system, and the System Operations Branch which controls the operations and scheduling of Metropolitan's entire distribution and storage system. Total budget is \$55 million, with a staffing complement of approximately 475 employees.
- Director of Business Development – 1997-1998
Started up and managed Metropolitan's Business Development Program. Responsibilities included policy development, internal coordination, marketing approach, and overall program development. Also responsible for managing Metropolitan's Corporate Strategic Plan, which is addressing changes in Metropolitan's business environment and how Metropolitan should position itself for these changes.
- Regional Operations Manager/Assistant Chief of Operations –1992-1997
Was responsible for the operation and maintenance of Metropolitan's five large water treatment plants and most of the treated and untreated distribution system. Managed a staff of 450 employees through seven direct reports. Responsibilities included all aspects of management, both technical and managerial.

Water Purification Engineer, Water Quality Division –1990-1992

Managed 30 engineers and technicians in the Managed Metropolitan's water treatment technical function. Responsibilities included: regulatory evaluations and implementation: applied research: coordination with Operations Division: chemical purchasing: and review of Engineering plans and specification. Represented Metropolitan on a committee with other State Water Contractors and State and Federal officials to implement the Sanitary Survey of the State Water Project.

- Sr. Engineer, Process Coordination Section, Water Quality Division – 1988-1990
Supervised Process Coordination Section of the Water Quality Division, whose primary functions included Plant Liaison, implementation of the Surface Water Treatment Rule, Chemical purchasing, and Engineering Liaison. Managed numerous consulting contracts.
- Engineer, State Water Project Branch, Resources Division – 1987
Served as liaison with the California Department of Water Resources on design and construction issues for the State Water Project. Evaluation proposed additions, such as Devil Canyon Power Plant expansion and second after bay, as

they pertain to Metropolitan. Represented Metropolitan on the State Water Contractor's Design and Construction Committee

- Associate Engineer/Engineer, Advance Planning Branch – 1986
Conducted facilities planning studies, including major portion of the System Overview Study. Served as initial project manager on the Eastside Reservoir Project, which evaluated 17 potential reservoir sites
- James M. Montgomery, Consulting Engineers, Inc., Sr. Engineer – 1984-86
Engineer/Senior Engineer in the water treatment plant design section. Assistant project engineer and later project engineer on design and construction of a new 12 mgd surface water treatment plant for the City of Redlands surface water plant, California. Project Engineer for rehabilitation of the City of Anaheim's 15 mgd Lenain Filtration Plant.
- Northern Ordnance Division of FMC Corp., Plant Environ. Engineer – 1983
Associate Plant Environment Engineer, responsible for all aspects of environmental compliance at a major naval weapons production facility.
- Wilson & Company, Engineers & Architects, Design Engineer – 1979-1981
Design engineer in the sanitary engineering department. Assisted in design of water and waste treatment plants, water and sewer network studies, etc.

Memberships

- American Water Works Association
- American Society of Civil Engineers

Civic Activities

- American Red Cross Board
- Long Beach Rotary Club

Publications and Papers

- Furnished upon request

ANNA MENDIOLA CITY OF LONG BEACH
DEPARTMENT OF PARKS, RECREATION & MARINE

EXPERIENCE

1999-Present City of Long Beach,
Department of Parks, Recreation and Marine
Long Beach, CA

Park Development Officer

- Coordinate Capital Improvement Project design and construction
- Prepare plans and budgets for the Capital Improvement Projects
- Coordinate activities within Department Bureaus and within other departments
- Review plans and specifications for Capital Improvement Projects

1989-1999 City of Palmdale, CA Department of Public Works

Landscape Architect

- Oversaw planning and development of landscaping standards and construction for the City
- Managed and reviewed park construction projects
- Site Plan Review Committee member.

1986–1989 City of Burbank, CA Dept. of Parks and Recreations

Landscape Architectural Associate

- Project manager for Park and Recreation Capital Improvement Projects.
- Prepared budgets and reports for CIP program
- Reviewed plans and specifications, inspected projects.

EDUCATION

1985 California Polytechnic University Pomona, CA
■ MLA, Master of Landscape Architecture

1981 University of California Riverside, CA
■ BS, Plant Science

MEMBERSHIPS/LICENSES

Member, American Society of Landscape Architects

Member, California Parks and Recreation Society

Licensed Landscape Architect No. 3279, California Architects Board

Resume of, ***Anthony G. Arevalo***

EDUCATION:

Bachelor of Science in Civil Engineering: California State University, Long Beach
Graduated in August 22, 1985

EXPERIENCE:

City of Long Beach
Department of
Public Works

Current Position Held: Capital Projects Coordinator

Jan. 2, 2002
to Present,

Serving as Project Manager for the Design and Construction of:

- Bluff Erosion Control Project, \$3.5M
- Chittick Field/Hamilton Bowl Redevelopment, \$3.0M
- Storm Water Pollution Mitigation, \$3.5M

Long Beach
Water Department

Last Position Held: Civil Engineering Associate

1989 to Present,

Serving as a Construction Manager and Resident Engineer for construction of:

- Reclaimed Water Pipeline, Phase 1A, \$1.2M
- Queensway Bay Water and Sewer Construction \$850K
- Cesar Chavez Water and Sewer Construction \$450K
- S-12 Sanitary Sewer Force/Gravity Trunk Main, \$2.1M
- Rehabilitation of Sanitary Sewer Pump Stations S-4, S-7, S-11 & S-12, \$1.9M
- Downtown Relief Sewer at Elm Avenue \$900K
- Downtown Relief Sewer at 5th Street. \$1.1M
- Emergency Water and Sewer Main Repairs in Various locations within the City, \$1.2M

Cash & Associates
(May 1989 to July 1989)

Last Position Held: Structural Engineering Associate

- Structural Plan Checking, Analysis and Design work
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